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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

November 11, 1999

Ms. Magalie Roman Salas
Office of the Secretary
Federal Communications Commission
445 Twelfth Street, S.W.
12th Street Lobby, TW-A325
Washington, DC 20554

Re: ***Ex Parte* Presentation**
WT Docket No. 96-86; WTB-2

Dear Ms. Salas:

On November 5, 1999, Paul Pettersson and Leo Fitzsimon of Nokia met with Kathleen Ham, Jeanne Kowalski and Michael Wilhelm of the Wireless Telecommunications Bureau to discuss issues concerning the above-captioned proceeding. Attached hereto is a copy of the presentation material that was distributed and discussed at this meeting.

Pursuant to Section 1.1206 of the Commission's Rules, an original and one copy of this letter are being filed with your office. Acknowledgement and date of receipt of these transmittals are requested. A duplicate of this letter is included for this purpose. If you should have any questions or need further information, please do not hesitate to contact me at (202) 887-5330.

Sincerely,

Leo R. Fitzsimon
Director, Regulatory and Industry Affairs
Nokia Inc.

Attachment

cc: Kathleen Ham
Jeanne Kowalski
Michael Wilhelm

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Interoperability in the 700 MHz band

Presented by Nokia November 5, 1999

Leo Fitzsimon and Paul Pettersson

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Introduction

- Nokia is a leading provider of PMR and public safety radio systems worldwide.
- 700 MHz PS band presented an opportunity for change in status quo in U.S. PS marketplace -- dominance by one major supplier.
- Nokia is a participant in the National Coordination Committee (NCC), which has been chartered to recommend a standard for the interoperability portion of the 700 MHz public safety spectrum.
- The most important recommendation the NCC will make is the choice of digital technology for the interoperability portion of the band.
- However, in Nokia's view, it does not appear that there is a desire in the NCC working groups to have a real debate over technology choice. Starting at the very first meeting, there has been an effort to force a quick vote.

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Introduction

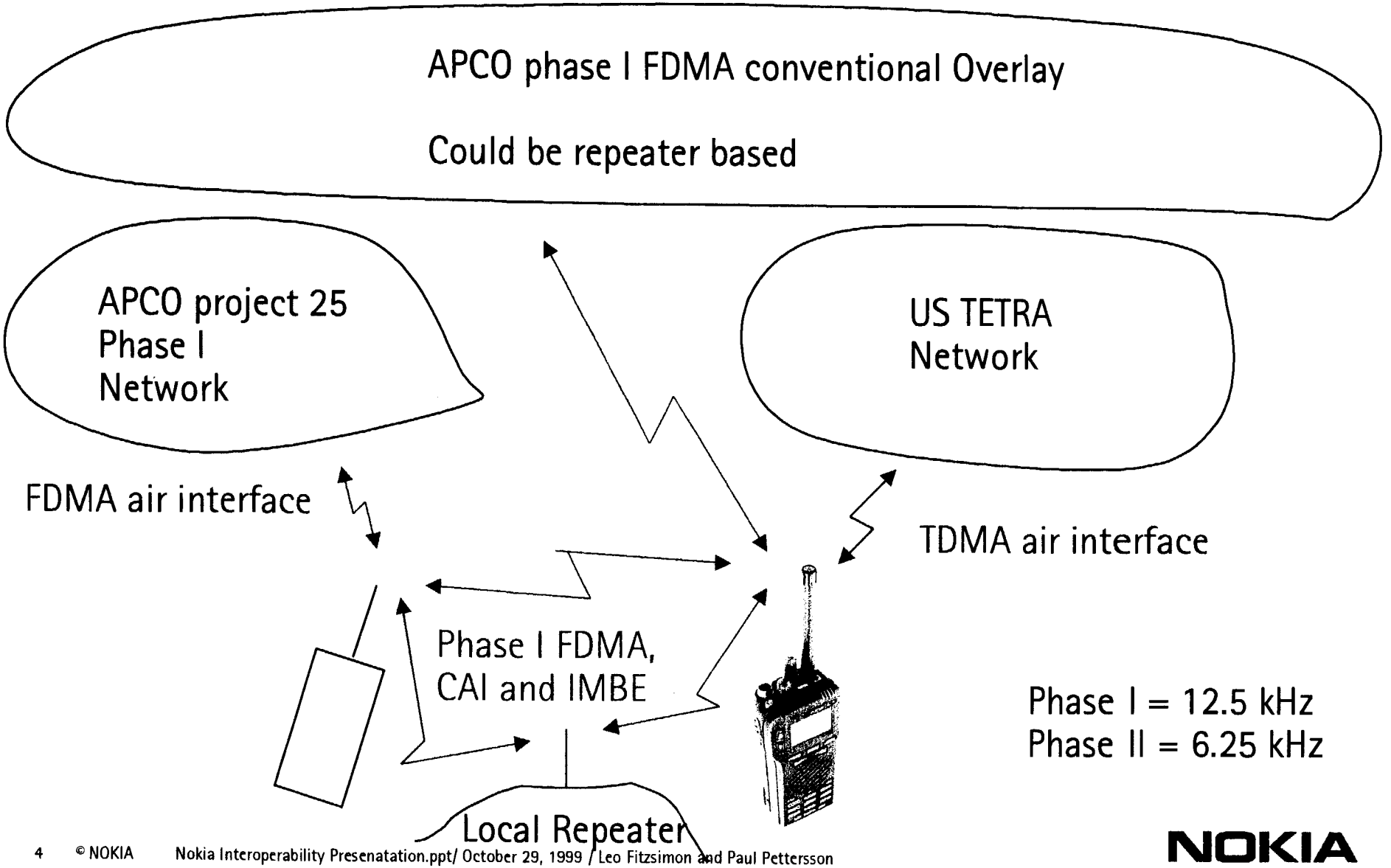
- Currently, the NCC is scheduled to make a recommendation to the FCC on the interoperability standard by in February 2000. In Nokia's view, this date was selected prematurely as it provides only 6 months for deliberation of the most important decision the NCC will make.

- Nokia has filed in support of Ericsson's Petition for Reconsideration of the original bandplan to allow for aggregation of four contiguous 6.25 kHz interoperability channels. Such a change to the rules would be necessary to allow for a four slot TDMA technology to be considered for interoperability use.

- In Nokia's view, there is no need to mandate a single digital standard for interoperability. Doing so would likely only preserve the status quo in this market.

- Nokia believes that more than one digital technology should be allowed to operate on interoperability channels, each one with a baseline analog capability for secondary, unit-to-unit interoperability operation.

APCO's View on Interoperability



Phase I = 12.5 kHz
Phase II = 6.25 kHz

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Multiple Methods of Providing Interoperability

Basic Mode of Operation Provided by Shared Platform

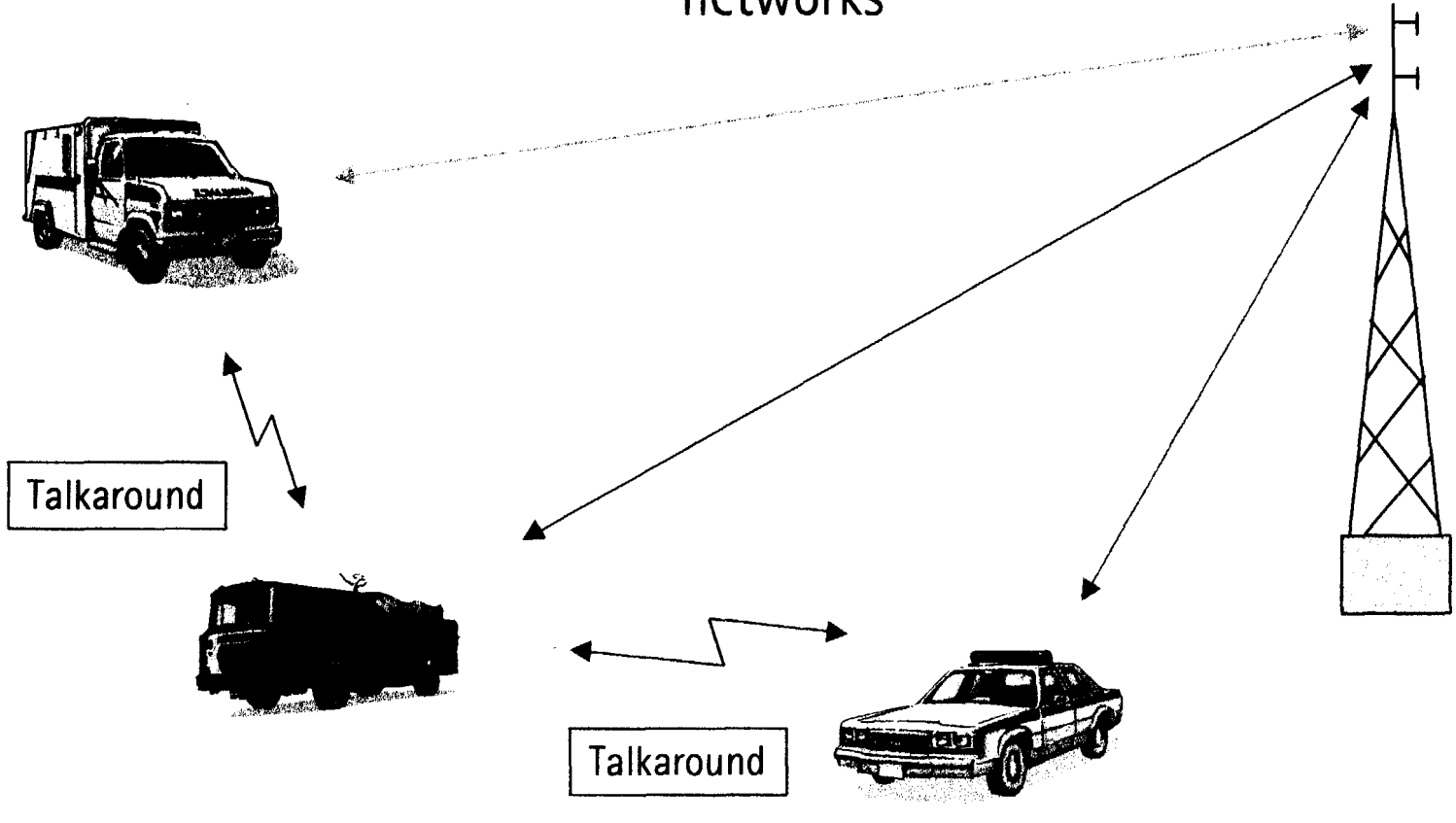
- A - Communication among different user groups within a shared network

Interoperability Alternatives

- B - Network Interconnection
  - Both users communicate through their own radio networks operating on different technologies FDMA phase I and US TETRA
  - Interoperability through system connection
- C - Gateway Repeater
  - Back to back solution
- D - Dual Mode Digital/ Digital Radio Terminals
  - Dual mode APCO project 25 Phase I FDMA and US TETRA
- E - Dual Mode Digital/ Analog Radio Terminals
  - Dual mode US TETRA / FM Analog TIA - 603
  - Dual mode APCO project 25 phase I FDMA / FM Analog TIA - 603

A - Communication among different user groups within a shared network

Trunking technology supports controlled use of shared networks



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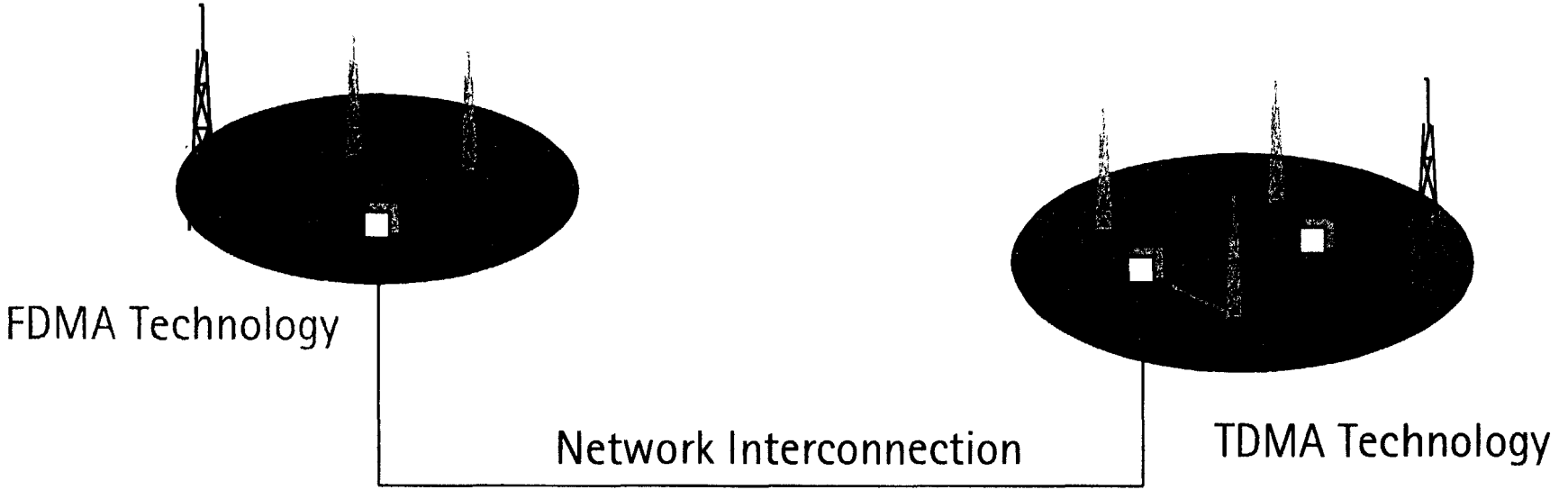
B - Network Interconnection



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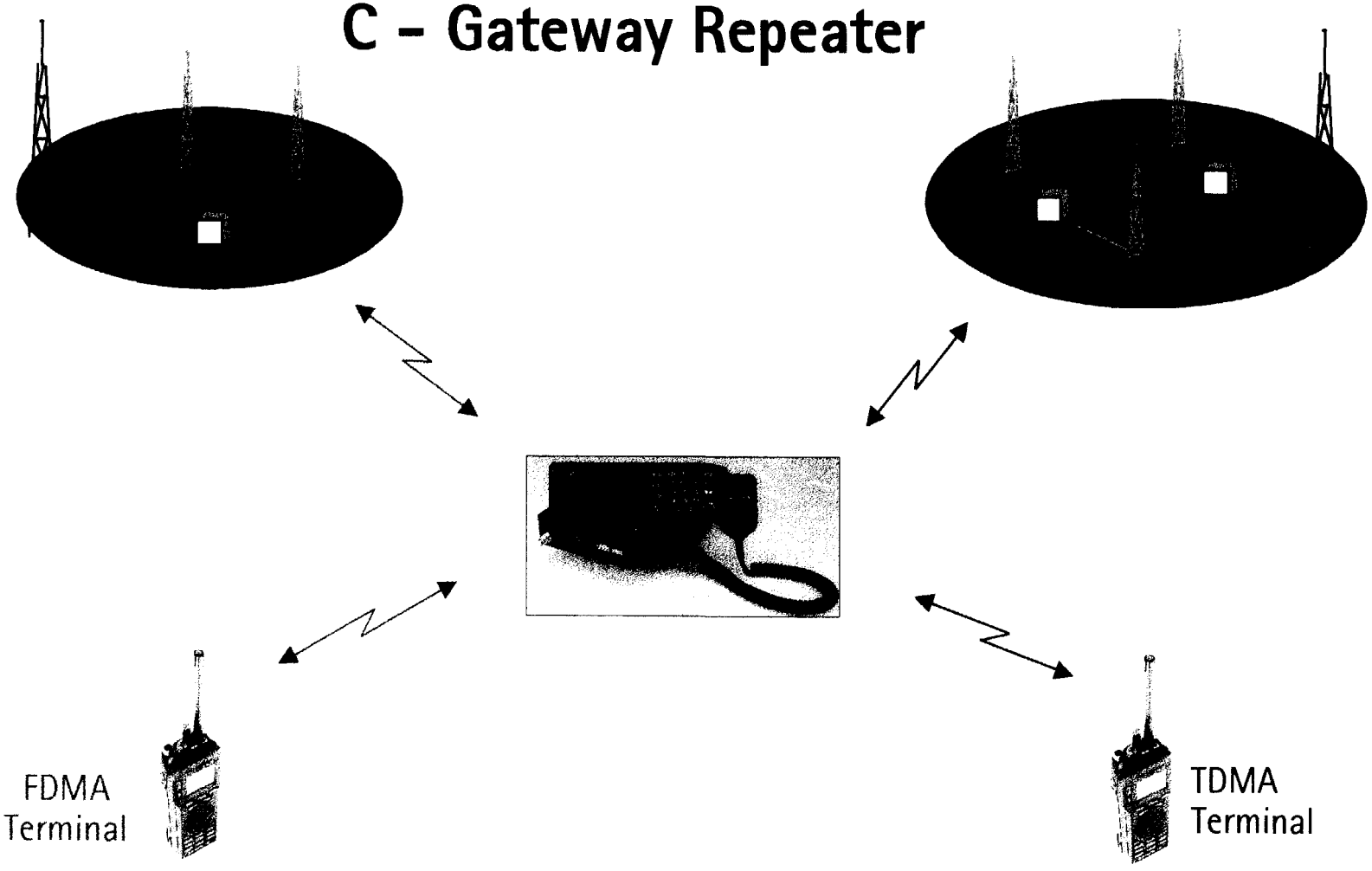
C - Gateway Repeater



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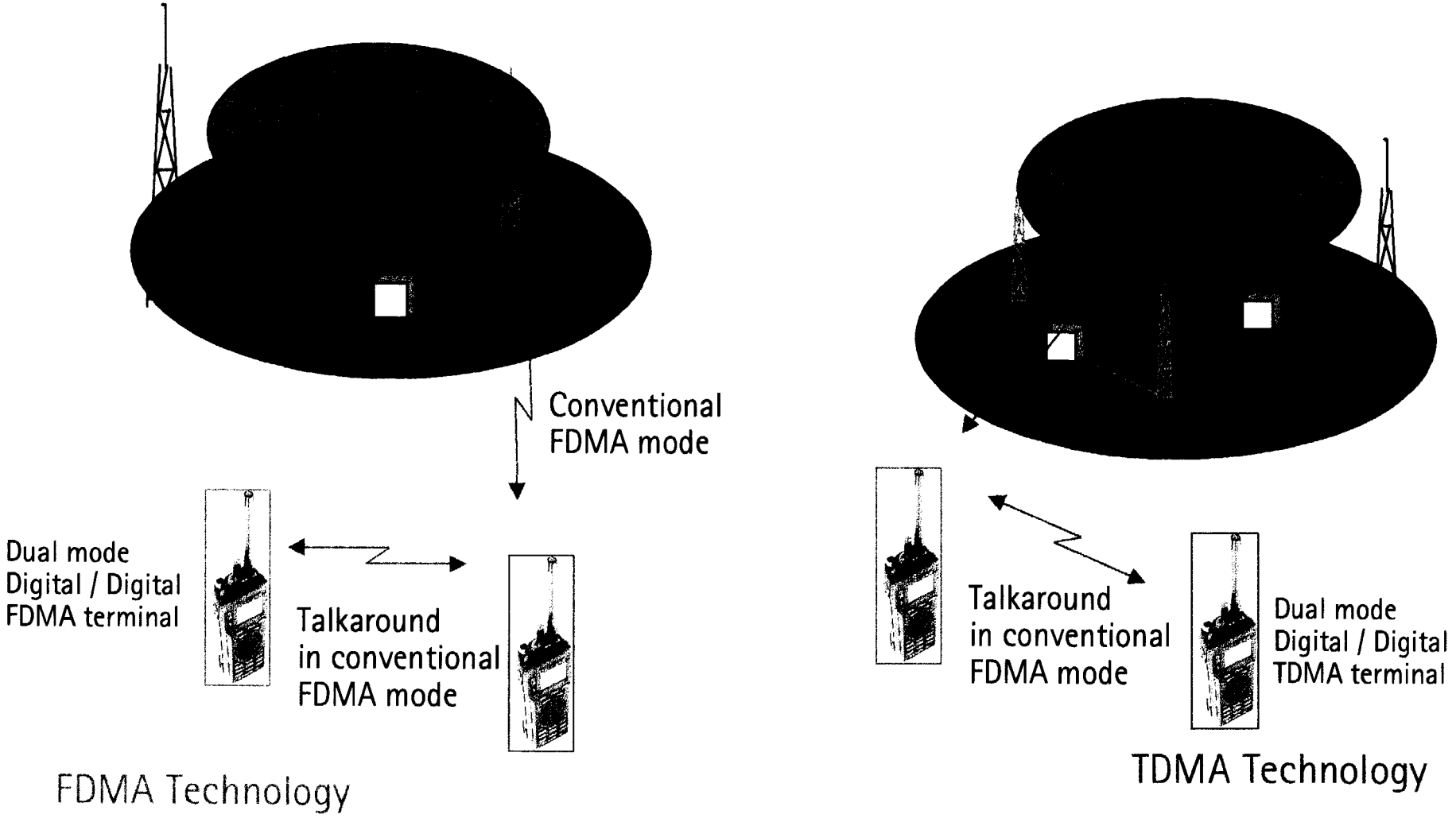
D - Dual Mode Digital / Digital Radio Terminals



FDMA Technology

TDMA Technology

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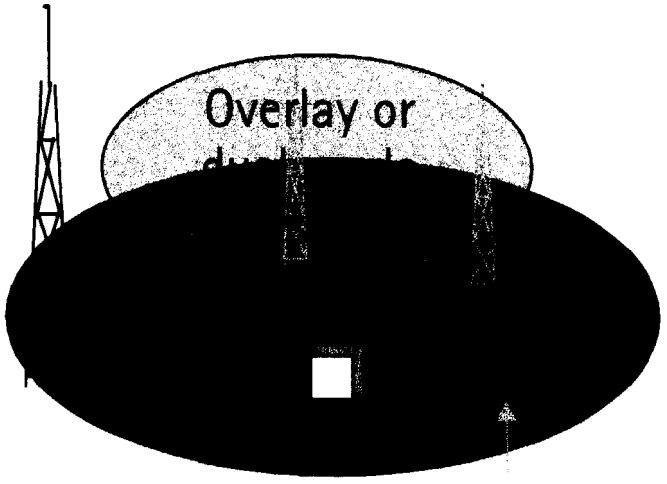
E - Dual Mode Digital / Analog Radio Terminals

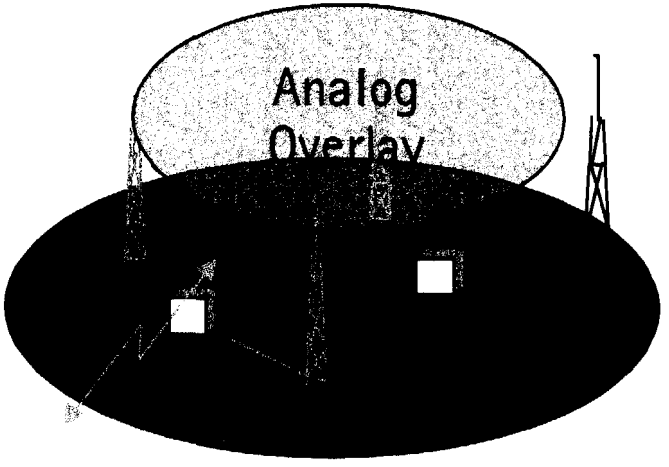


Analog
FM mode

Dual mode
Digital / Analog
FDMA / FM
terminal

Talkaround
in analog
FM mode

FDMA Technology



Talkaround
in analog
FM mode

Dual mode
Digital / Analog
TDMA / FM
terminal

TDMA Technology

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Digital Digital Interoperability

- Dual mode platform - Alternative C
- Majority of the suppliers are not developing both technologies
- Most manufactures have feasibility doubts regarding the dual mode trunking terminals
- Why do we need a complex solution ??

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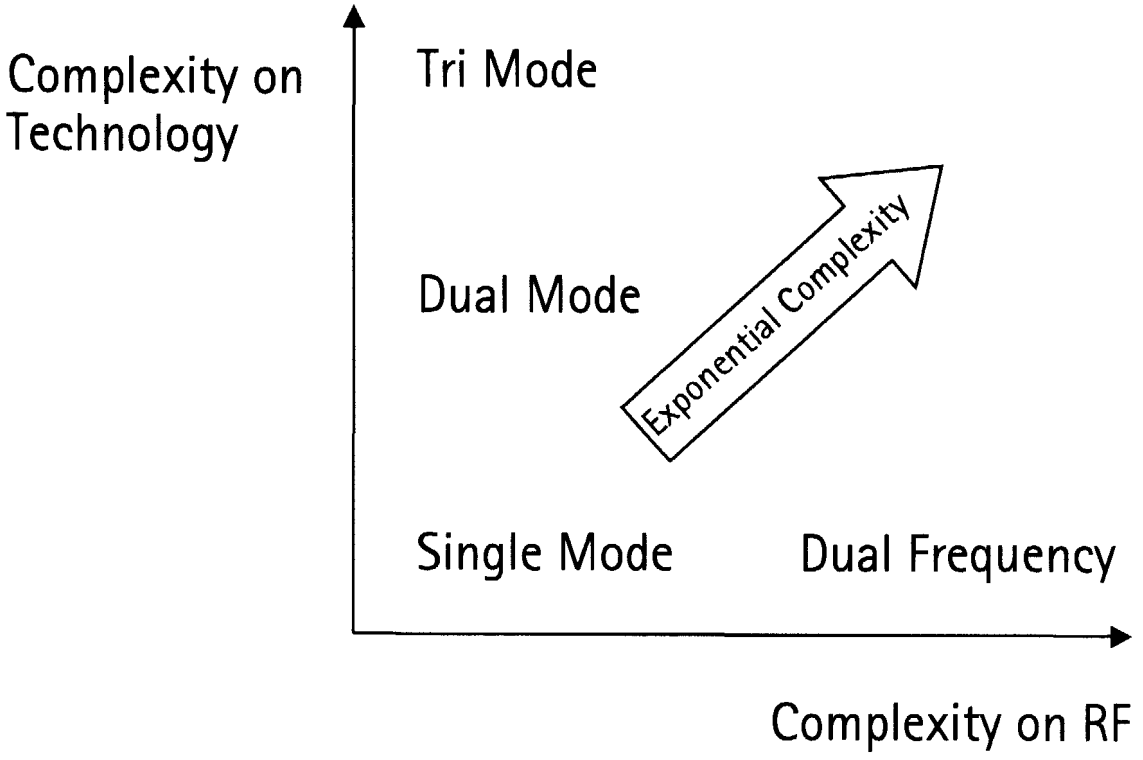
The complexity of technology platforms



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Analog Digital and Digital Digital in the Future

- All manufactures have some mode of interoperability today in the analog equipment - simplest is same frequency
- Common Analog Interoperability + NEW Digital would open a multi vendor market
- Digital and NEW Digital in the future would allow for the recovery of the investments from the existing technologies

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Are there alternatives to APCO's view ?

Interoperability - FDMA

FDMA is a less complex mode of operation, compared to TDMA.

This sets the lowest common denominator for mode of operation to FDMA.

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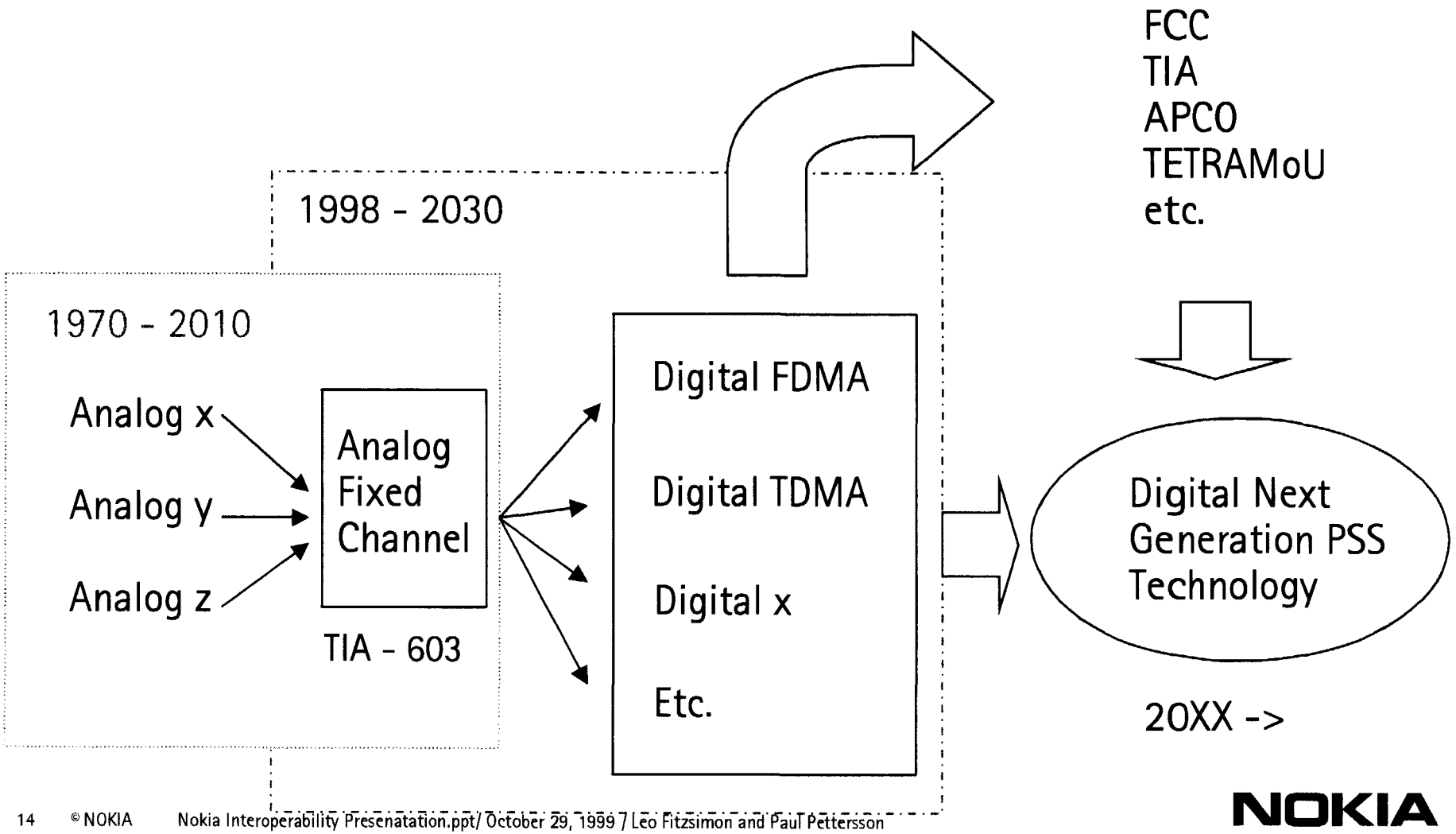
Public Safety Communication Road Map



Nokia's Proposal

- Consider new channel allocation, as proposed in the Ericsson petition and supported by Nokia, for the interoperability channels - supported by letter from NCC
- Allow both US TETRA and APCO phase I, FDMA to operate as the primary digital interoperability modes
- Allow analog TIA - 603 as secondary mode of interoperability for unit to unit communications

Challenges With Analog

- Frequency Efficiency
- APCO decision and NCC evaluation do not consider analog at all
- Too simple a solution ??
- FCC declined to adopt analog interoperability for primary mode
  - However FCC allowed analog as a secondary mode for mobile and portable radios

Conclusion

- Nokia understands the importance of interoperability
- Nokia is a significant technology provider in US
- Nokia is willing to contribute in the LMR / PSS field

- 700 MHz channel allocation
- Dynamic interpretation of the interoperability standard